



Immunization & Infectious Diseases

Deaths from infectious diseases declined markedly in the United States during the 20th century. This decline contributed to a sharp drop in infant and child mortality and to a 29.2 - year increase in life expectancy. Public health actions to control infectious diseases during this period were based on 19th century discoveries of microorganisms as the cause of many serious diseases. Primarily, disease control resulted from improvements in sanitation, the implementation of universal childhood vaccination programs and the discovery and use of antibiotics.

Unfortunately, success in reducing morbidity and mortality from infectious diseases during the first three quarters of the last century led to complacency about the need for continued epidemiological vigilance and the continuous application of appropriate public health control measures. As a consequence, between 1980 and 1992, the number of deaths from infectious diseases rose 58 percent in the United States. Even when human immunodeficiency virus-associated diagnoses were removed from the analyses, deaths from infectious diseases still increased 22 percent during this period.

New infectious agents and diseases are being detected, some diseases once considered under control have reemerged in recent years and antibiotic resistance is evolving rapidly in both the hospital and community setting. It is clear that infectious diseases remain a major cause of illness, disability and death, exacting an unacceptable toll in terms of human suffering and economic resources. Indeed, many challenges remain before the public health goal of prevention and control of infectious diseases will be fully realized.

In Arizona, one of these challenges is an apparent increase in the number of reported cases of invasive *Streptococcus pneumoniae* disease. Since being made reportable by laboratories in 1997, the annual number of reported cases has been 460, 749 and 822 for the years 1997, 1998 and 1999 respectively. These cases tend to occur in the very young and very old. Fortunately, there are now vaccines that are effective in these groups and the possibility for reducing the incidence of this disease is very real.

Another disease for which a new vaccine offers hope of prevention is hepatitis A. Historically, western states in general, and Arizona in particular, have reported the highest rates of hepatitis A in the United States. A variety of studies and control efforts prior to 1999 were universally unsuccessful in

reducing the overall incidence and regularly occurring epidemics of this disease. With the introduction of the hepatitis A vaccine a new strategy exists to reduce the effects of this miserable and costly affliction.

Treatment of diseases caused by bacteria is now compromised by an increasing prevalence of antibiotic resistant organisms. In Arizona, for instance, penicillin resistance in invasive pneumococcal isolates from children less than five years old increased from 32 percent in 1999 to 48 percent in 2000. Resistance to antibiotics means that infections once thought to be under control are now more difficult and expensive to treat. The causes of the observed increase are complex and the actions needed to reverse this trend will require the cooperative efforts of a public and private partnership involving a wide variety of groups.

Strategic vaccination campaigns have virtually eliminated diseases that previously were common in the United States, including diphtheria, tetanus, poliomyelitis, smallpox, measles, mumps, rubella and *Haemophilus influenzae* type b meningitis. However, the organisms that cause most of these diseases have not disappeared. Rather, they have receded and will reemerge if the vaccination coverage drops. Also, vaccines protect more than the vaccinated individual. If coverage is maintained at a high enough level, the causative organisms cannot circulate and cause disease in the few who are not or who cannot be vaccinated. Accordingly, the importance of sustaining an adequate level of coverage, particularly in young children, cannot be overemphasized. Nor should the importance of adult vaccinations be minimized. It is instructive to recall that in the century that witnessed the greatest reduction of infectious diseases, the world endured one of the most devastating epidemics in human history: the 1918 influenza pandemic that resulted in 20 million deaths, including 500,000 in the United States.

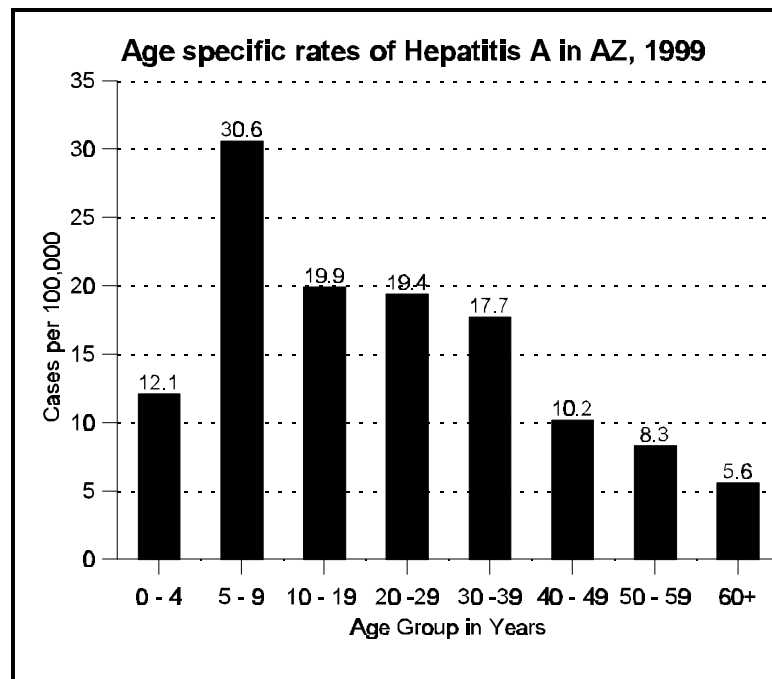
Objective #1 Increase the proportion of non-institutionalized older adults who are vaccinated annually against influenza and ever vaccinated against pneumococcal disease.

Strategy 1.1 Enhance and expand the promotion of PPV and influenza vaccinations in persons 65 and older in home healthcare settings, in dialysis centers and among diabetics.

Strategy 1.2 Incrementally increase the accessibility of PPV and influenza vaccinations to persons 65 and older through the following steps:

- Support Legislative initiatives to permit pharmacists to vaccinate adults.

- Encourage Fire Departments to vaccinate adults in neighborhood clinics.
- Promote the use of emergency medical technicians to provide vaccinations in rural areas.
- Support a statutory requirement that hospitals vaccinate any unvaccinated person 65 and older who is admitted or seen in an emergency room



Objective #2

Reduce the rate of Hepatitis A.

Strategy 2.1

Increase the recommended age group for hepatitis A vaccination incrementally from the current 2-5 years of age to 2-18 years of age and accompany these changes with educational and promotional campaigns.

Strategy 2.2

Provide hepatitis A vaccinations to youths held in juvenile detention centers.

Strategy 2.3

Implement the new ADHS Food Code rules which require that food handlers with symptoms suggestive of hepatitis A report their condition to their managers and be removed from food contact activities.

Objective #3	Reduce the rate of new invasive pneumococcal infections (e.g. otitis media, meningitis, pneumococcal pneumonia) both in children under 5 years of age and in adults aged 65 years and older.
Strategy 3.1	Make available pneumococcal 7-valent conjugate vaccine (PCV7), both through the VFC program and by securing state funding for purchase of vaccine to meet the needs of those not covered by VFC and educate providers on the appropriate use of PCV7 and pneumococcal polyvalent vaccine (PPV) in children.
Strategy 3.2	Develop and implement a statewide project to promote the appropriate use of pneumococcal vaccines in children through education of parents and providers.
Strategy 3.3	Develop and implement a statewide project directed at senior citizens, healthcare providers and caregivers to promote the use of pneumococcal vaccine in persons 65 and older including a statutory requirement that hospitals vaccinate any unvaccinated person 65 and older who is admitted or seen in an emergency room.
Objective #4	Increase the proportion of children 19 through 35 months of age who receive all of the following recommended vaccines: 4 DTaP, 3 polio, 1 MMR, 3 Hib and 3 hepatitis B.
Strategy 4.1	Introduce and promote the concepts of the AFIX program in private sector healthcare plans.
Strategy 4.2	Improve the system for communicating immunization information relating to individual children between Arizona and its neighboring states and Mexico to assure completeness of immunizations.
Strategy 4.3	Enhance reminder recall in all healthcare systems providing immunization services to assure completeness of immunization.
Objective #5	Reduce the number of courses of antibiotics for ear infections for young children.
Strategy 5.1	Introduce and promote the "State of Arizona Group on Understanding Antibiotic Resistance" (S.A.G.U.A.R.O.) A coalition of over 30 partners with the following goals:

- Decrease the trend in antibiotic resistance
- Increase the quality of care and reduce the cost of treating bacterial infections
- Increase the knowledge level of all members of the caregiver team
- Create a greater level of public awareness around this issue

Strategy 5.2 Recommend and promote locally, national (or modified national) “Judicious Antibiotic Use Guidelines”.